

# SEMICONDUCTOR RING LASER AND MANUFACTURING METHOD THEREFOR

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## Abstract of JP2002344079

**PROBLEM TO BE SOLVED:** To provide a ring laser which enables stable operation to be executed by reducing an influence of back scattering, which will not even raise the threshold current, even if the ring length is set relatively long. **SOLUTION:** When current is injected, a light having a wavelength of about 840 nm is generated from an active layer 13. This light is supplied to an adjacent waveguide core layer 8, propagation through a ring waveguide 2, and is re-supplied to the layer 13. Since the waveguide 2 has an energy band gap wavelength of 780 nm, loss of the light having the wavelength of 840 nm is small. Since the current injection needs to be executed only in an active region, particularly when the ring length is long, the ring laser is advantageous, as compared to the prior art in which the current must be injected in the overall ring waveguide. Since backscattered current of the ring waveguide will not be amplified, the laser can be operated in two stable modes of CW and CCW. This element can detect a rotation by extracting the change of a carrier in the laser as voltage change from the electrode 4, in which the current is injected.

